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# मानक

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IS 9175-2 (1985): Rationalized Steels for Automobile and Ancillary Industry, Mechanical and Physical Properties, Part 2: 15c8 Grade Steel [MTD 16: Alloy Steels and Forgings]



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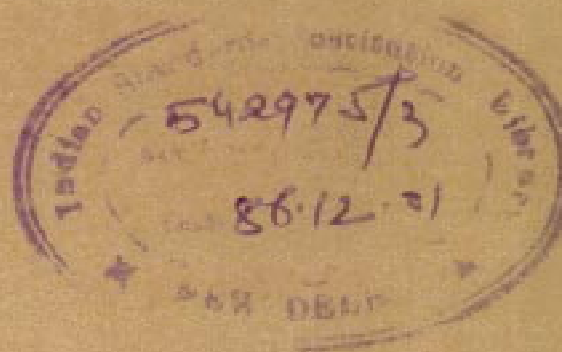
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# *Indian Standard*

## SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES PART 2 15C8 GRADE STEEL

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*Indian Standard*

# SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES

**PART 2 15C8 GRADE STEEL**

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# *Indian Standard*

## **SPECIFICATION FOR RATIONALIZED STEELS FOR AUTOMOBILE AND ANCILLARY INDUSTRY, MECHANICAL AND PHYSICAL PROPERTIES**

### **PART 2 15C8 GRADE STEEL**

#### **0. F O R E W O R D**

**0.1** This Indian Standard ( Part 2 ) was adopted by the Indian Standards Institution on 26 December 1985, after the draft finalized by the Co-ordinating Committee on Materials for Automobiles had been approved by the Structural and Metals Division Council.

**0.2** The Part 1 of this standard was published in 1979 which covered the chemical composition of 33 rationalized steels. The mechanical properties, hardenability and isothermal transformation characteristics of these 33 rationalized steels are now being covered in different parts of this standard ( Parts 2 to 34 ). The data concerning these properties given in this standard is only for guidance and information purposes.

**0.3** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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#### **1. SCOPE**

**1.1** This standard ( Part 2 ) covers the chemical composition and mechanical properties of 15C8 grade of steel for use by automobile and ancillary industry.

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\*Rules for rounding off numerical values ( revised ).

**2. CHEMICAL COMPOSITION**

**2.1** The chemical composition of this grade of steel shall be as given below:

<i>Constituents, Percent</i>				
C	Si	Mn	S	P
0.10-0.20	0.15-0.35	0.60-0.90	0.035 <i>Max</i>	0.035 <i>Max</i>

**3. HARDNESS**

**3.1** The maximum hardness for this grade of steel, delivered in the annealed or normalized condition, when determined in accordance with IS : 1500-1983\*, shall be 143 HB.

**4. MECHANICAL PROPERTIES**

**4.1** The mechanical properties of this grade of steel in the blank carburized and hardened condition, when determined in accordance with IS : 1598-1977† and IS : 1608-1972‡, shall be as given below:

Tensile strength, MPa, <i>Min</i>	490
Elongation, percent, gauge length	17
$5.65 \sqrt{A}$ , <i>Min</i>	
Izod impact value, joules, <i>Min</i> at room temperature	55
Limiting ruling section, mm	30

**5. HOT WORKING AND HEAT TREATMENT TEMPERATURES**

**5.1** The recommended hot working and heat treatment temperatures are given below:

Forging/rolling temperature	1 250°C
Annealing temperature	880-950°C
Subcritical annealing	630-700°C
Normalizing temperature	880-950°C
Carburizing temperature	880-950°C
Refining after carburizing	880-950°C
Hardening temperature	900-950°C
Hardening after carburizing	760-780°C
Tempering temperature	650°C <i>Max</i>

\*Method for Brinell hardness test for metallic materials ( *second revision* ).

†Method for Izod impact test of metals ( *first revision* ).

‡Method for tensile testing of steel products ( *first revision* ).



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